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HOSPITAL PHARMACY SURVEY 1984

A survey of the 1983 operations of
2102 hospital pharmacies
provided to hospital pharmacy directors
in the interest of sound management

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Foreword

Early in 1984, a questionnaire was sent to hospital pharmacies across the United States. More than 2100 pharmacists responded with a wide range of information. The response rate of about 29 percent reflects the continuing interest of hospital pharmacists in the economic information contained in the LILLY HOSPITAL PHARMACY SURVEY.

This 1984 edition of the SURVEY contains data similar to statistics found in previous issues. It is a compilation of operating data submitted by hospital pharmacy directors and managers. The report is not intended to describe what constitutes optimum hospital pharmacy practice, nor does it attempt to define or structure the sample. It simply presents the averages of the data of actual operations that were reported to the SURVEY. Because not all hospital pharmacists responded to every question, some of the charts and tables are based on information from fewer than the total number who participated. In some tabulations, sample sizes were not large enough to be statistically useful, and these are designated as "n/a" (not available).

Eli Lilly and Company is pleased to present this service to all who are interested in hospital pharmacy practice and would like to express its appreciation to those who took the time to submit thier operating data. They are responsible for this latest edition. It is hoped that the SURVEY will prove to be helpful to hospital pharmacy managers in their efforts to analyze their hospital pharmacy operations.

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Key operating data are arranged in Table 1 to reflect a composite profile of the "average" hospital pharmacy in the United States for 1983. Because this hypothetical pharmacy is derived mathematically from a broad range of information, the figures may be too general to be used for direct comparison. However, trends can be observed by comparison with similar statistics published in earlier editions of the LILLY HOSPITAL PHARMACY SURVEY.

Table 1 shows that the average hospital had a bed capacity of 246—about the same as in 1982. Census, however, fell from 71 to 69 percent. Although admissions rose 1.1 percent to 8750, patient stay declined from 7.3 to 7.1 days. Consistent with an earlier trend, the largest segment of reporting hospitals was the private, nonprofit institution.

The number of hours the central pharmacy was open as well as the hours worked by pharmacists and technicians increased slightly during the reporting period, whereas support personnel hours worked declined fractionally. Overall, the total hours worked per week by the hospital pharmacy staff rose 1.5 percent as compared with the figure for the previous year. The number of hours of pharmacist, technician, and support personnel time required for each hour the central pharmacy was open during 1983 was unchanged at 2.9, 2.7, and 1.2 respectively.

Table 1 *Average hospital pharmacy*

	1983 (2102 Hospitals)	1982 (2169 Hospitals)	Percent of Change
Bed capacity	246	245	+0.4%
Class	Private (nonprofit)	Private (nonprofit)	
Profile	General	General	
Census (beds occupied)	69%	71%	
Admissions	8750	8657	+1.1%
Length of patient stay	7.1 days	7.3 days	
Hours central pharmacy open/week	96	95	+ 1.1%
Pharmacist hours/week	281	278	+ 1.1%
Technician hours/week	263	255	+ 3.1%
Support hours/week	116	117	(− 0.9%)
Inventory	$121,552	$112,262	+ 8.3%
$ 1.96 Patient day		$ 1.77/Patient day	+10.7%
$ 494/Bed		$ 458/Bed	+ 7.9%
$ 715/Occupied bed		$ 645/Occupied bed	+10.8%
$13.89/Admission		$12.97/Admission	+ 7.1%
Purchases	$879,431	$742,734	+18.4%
$ 14.19/Patient day		$11.70/Patient day	+21.3%
$ 3575/Bed		$ 3032/Bed	+17.9%
$ 5181/Occupied bed		$ 4270/Occupied bed	+21.3%
$100.51/Admission		$85.80/Admission	+17.1%
Inventory turnover rate	7.2 times	6.6 times	
Floor area (central pharmacy)	1629 sq ft	1600 sq ft	
Services offered by over 60% of pharmacies:			
Monitoring patient profiles		Monitoring patient profiles	
Monitoring drug interactions		Monitoring drug interactions	
Providing drug information services		Providing drug information services	
Drug therapy consultation		Drug therapy consultation	

In line with previous trends, the dollar values reported for inventory and purchases were higher during 1983 (up 8.3 and 18.4 percent respectively). The estimated inventory turnover rate increased significantly from 6.6 to 7.2 times. Interestingly, if the turnover rate had remained at 6.6 times during 1983, inventory would have been over $11,000 higher, up 18.7 percent from 1982. Also noteworthy is the fact that hospital pharmacy managers have improved their turnover rate more than two full turns since 1977—from 5.1 to 7.2 in 1983. This suggests that managers of hospital pharmacy operations are continuing their efforts to exercise more control over inventory investment.

Hospital pharmacy managers have indicated that comparisons between data representing two or more years' operations may be more conveniently expressed in terms of patient days. During 1983, inventory equaled $1.96 per patient day, a 10.7 percent rise over the previous year. Purchases were $14.19 per patient day, an advance of 21.3 percent. Since these data do not account separately for inflation, it is impossible to single out their influence on inventory and purchase statistics from patient use of drugs and related items.

Floor area of the central pharmacy increased from 1600 to 1629 square feet during 1983. This may be explained, in part, by the continuing expansion of hospital pharmacy services, such as unit-dose and IV admixture programs.

Services offered by over 60 percent of hospital pharmacies responding to the SURVEY remained unchanged from last year. Drug therapy consultations showed the largest growth rate during

the two-year period, with 68.5 percent offering this service in 1983 as compared with 65.9 percent in 1982. These data suggest that clinical services among reporting hospital pharmacists continue to expand.

A comparison of selected operating statistics covering the eight-year history (1976-1983) of the LILLY HOSPITAL PHARMACY SURVEY shows the following trends:

- Pharmacy hours open rose from 74 to 96 (an increase of 29.7 percent, or almost 4 percent per year).
- Pharmacist hours worked per week advanced 84.9 percent from 152 to 281, or over 10 percent per year.
- Technician hours worked per week varied but increased overall from 129 to 263 (a 103.9 percent increase, or 13 percent per year).
- Inventory investment rose 77.1 percent, an annual growth rate of about 10 percent for the eight-year period. In terms of patient days, the increase was 100 percent, at an annual rate of over 12 percent.
- Purchases have grown 170.3 percent since 1976, an annual growth rate of over 21 percent. In terms of patient days, the increase was 205.2 percent, up an average of about 26 percent each year.

The number and bed size of hospitals contributing operations data to the SURVEY are shown in Chart 1. The distribution of these institutions by bed size closely parallels that reported in previous SURVEYS. Hospitals with fewer than 200 beds accounted for 1145 pharmacies, or 54.5 percent of the sample, which is virtually the same percentage figure reported in last year's edition. A total of 388 hospitals with more than 400 beds was included in the sample and accounted for 18.5 percent of participants (slightly lower than the 18.9 percent figure recorded the previous year). Compared with the distribution of hospitals shown in other studies, the statistics in the 1984 LILLY HOSPITAL PHARMACY SURVEY are again weighted slightly in favor of larger facilities.

Chart 1 *Number of hospitals reporting*

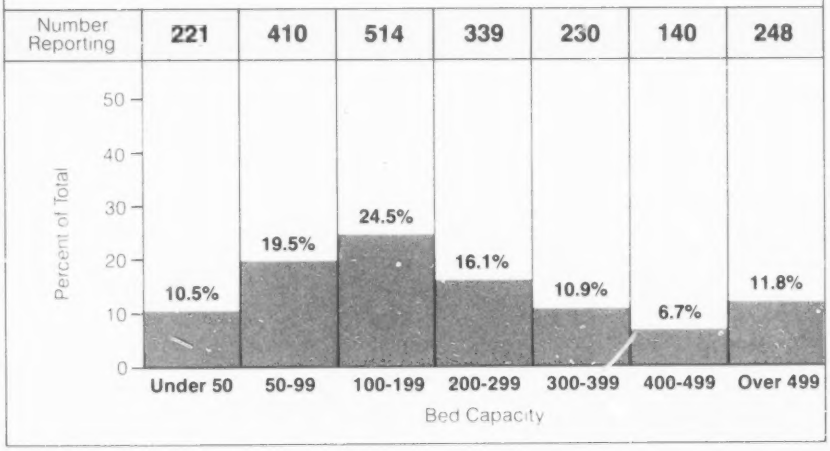
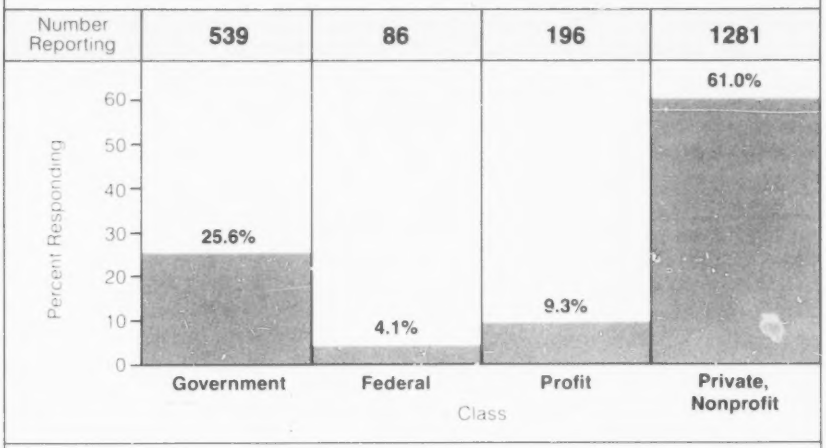


Chart 2 identifies reporting hospitals according to classification and profile. The data shown closely resemble those published in last year's edition. Private, nonprofit hospitals accounted for 59.0 percent of the previous sample, whereas this year's figure is 61.0 percent. Hospitals classified as profit institutions accounted for 9.3 percent of the sample in 1983, down from 10.5 percent for 1982. Government facilities declined slightly from 25.8 percent of the total sample to 25.6 percent during 1983. Federal hospitals also showed a reduction in participation for 1983—down from 4.7 percent to 4.1 percent. Private, nonprofit hospitals again make up the largest reporting segment; government facilities are the next largest group and include all city, county, and state institutions. Profit and federal hospitals follow the government group and collectively comprise 13.4 percent of participants. Chart 2 indicates that general-profile hospitals are the largest category reporting within all classes. General funding seems to vary with hospital class and profile and can result in variations in capitalization and accounting methods. These, in turn, may affect management practices and, ultimately, pharmacy operating statistics.

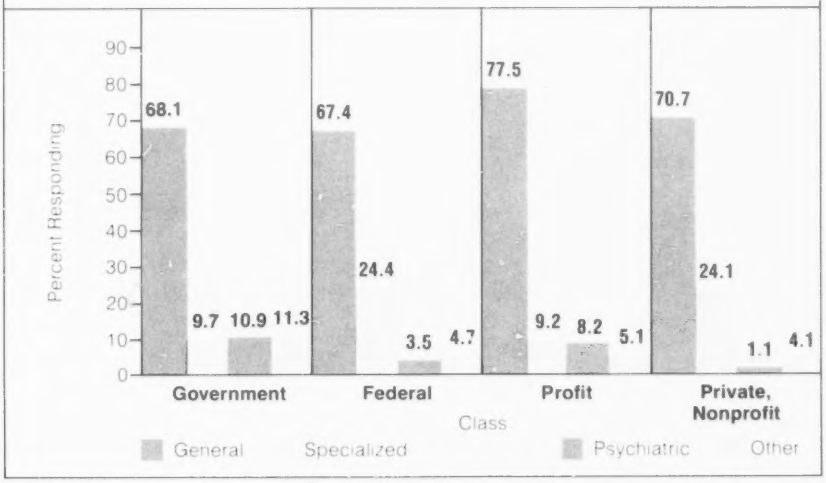
Hospital profile differentiates participating institutions by the characteristics that best describe them (i.e., general, specialized, psychiatric, etc.) and allows additional tabulations within each major classification (federal, government, nonprofit, profit). The hospital profiles used in these tabulations are listed below:

General—A medical and surgical hospital in which many types of patients (orthopedic, pediatric, Ob-Gyn, etc.) are treated. General surgical procedures, including appendectomies, cholecystectomies, and T & A's are performed *routinely*.

Chart 2 *Identification of hospital classification*



Identification of hospital profile



Specialized—Also a general medical and surgical hospital in which, in addition to the above surgical procedures, such specialized procedures as open-heart surgery, organ transplants, and dialyses are *routinely* performed. Oncology clinics and burn centers are included in this category.

Psychiatric—Long-term behavioral disorders are treated.

Other—TB, pediatric, orthopedic, rehabilitation, mental health, etc.

The comparative information in this publication is arranged so that an analysis of pharmacy operations in both general and specialized hospitals can be accomplished easily. Although pharmacies in other types of hospitals submitted data, their sample size was so small at some bed levels that meaningful operating statistics could not be determined.

General hospitals account for the largest percentage of pharmacies included in this year's SURVEY—70.5 percent—which is slightly higher than the 69.9 percent reported last year. The percentage of specialized facilities reporting was 19.0 percent this year compared with 20.1 percent recorded in the previous edition. Psychiatric hospitals account for 4.4 percent of total respondents (up from 3.7 percent for 1982). The remaining hospitals fell into other profiles.

The average central pharmacy area reported by various classes of hospital pharmacies is contained in Table 2. A comparison of these data with similar figures from last year's SURVEY reveals that most profit and private, nonprofit hospitals are allocating additional space for central pharmacies. This is also true for government facilities with over 400 beds. Interestingly, government hospitals having between 400 and 500 beds increased the size of their central pharmacies almost 58 percent during 1983, whereas private, nonprofit institutions having between 300 and 400 beds decreased the square footage of their central pharmacies by about 5 percent. SURVEY data suggest that government hospitals allocated space equal to 38 percent of the central pharmacy area for remote storage of pharmacy-related items—the same percentage as last year. Federal facilities provided space that was one-quarter the size of the central pharmacy for ancillary storage (down from 29 percent reported the previous year). Profit and private, nonprofit hospitals apportioned an area equal to 22 percent and 20 percent of the central pharmacy for a similar purpose. Among all reporting hospitals, an area equivalent to 24 percent of that of the central pharmacy was utilized for remote storage.

Of the 2089 hospital pharmacies responding, 1941 (92.9 percent) said that physicians could request a nonformulary item. This figure was slightly lower than that reported last year. A total of 165 of 2058 hospitals, or 8 percent, have responsibility for central supply service—a slightly lower percentage than last year's figure. Of these, 36.5 percent were involved with only the purchasing function, whereas 39.4 percent were engaged in both purchasing and providing administrative services.

The operation of the pharmacy department by an outside management organization was reported by 120 (5.7 percent) respondents, and, of these, 109 (90.8 percent) were general hospitals and one was a specialized institution. Comparison of these

Table 2 *Average central pharmacy area*

Bed Capacity	Average Total Area (sq ft)				
	Federal	Government	Profit	Private, Nonprofit	Average
Under 50	672	400	407	347	403
50-99	n/a	534	621	641	621
100-199	n/a	965	830	1175	1121
200-299	n/a	1909	1303	1855	1831
300-399	n/a	2356	n/a	2263	2299
400-499	n/a	3266	n/a	2897	2927
Over 499	4423	3005	n/a	4309	3814

data with similar figures from last year's SURVEY indicates a reduction in the number of hospitals being operated by outside management groups.

About one in three participating hospitals indicated that they offered accredited medical resident/intern training programs. A total of 67.9 percent of all federal facilities provided these programs, with private, nonprofit hospitals next at 38.5 percent, followed by government institutions (24.5 percent) and profit hospitals (10.9 percent). During 1983, the percentage of federal and profit hospitals that offered training programs remained virtually unchanged, whereas the percentage of hospitals in the private, nonprofit and government sectors decreased slightly. As expected, over 88 percent of these types of programs operate in either general or specialized hospitals. The impact of this trend on pharmacy inventory and purchases is discussed in another section of the SURVEY (*see* Table 8).

SURVEY data show that about 70 percent of participating hospitals are involved to some degree, on at least a weekly basis, in manufacturing and/or packaging pharmaceuticals for in-house use—the same percentage reported last year.

Computer utilization by hospital pharmacy departments increased during 1983. Computers were used for patient billing in 51.5 percent of reporting hospitals—up slightly from 51.2 percent the previous year. Computer-generated formulary systems were used by 28.6 percent of the total sample (up almost 5 percent). Computers were used to record patient-profile information in 22.5 percent of responding hospitals—up from 18.2 percent reported last year. The inventory control process was computerized in 15.1 percent of the sample (up from 13.2 percent).

Table 3 contains data on annual hospital admissions, which, as expected, rise in proportion to hospital size. Although the admission numbers for federal and profit hospitals were statistically insufficient, the data did suggest that these hospitals have the lowest number of annual admissions. The averages presented are representative for each hospital size and may be used for comparison regardless of classification. A comparison of these figures with those from last year's SURVEY shows that admissions tended to be higher in both government and private, nonprofit institutions, particularly in those hospitals having over 300 beds.

The average annual census figures (percentage of occupied beds) are presented in Table 4. The data indicate that the census declined slightly in hospitals of all sizes during 1983. Because the majority of institutions within each size range report a similar census but admissions vary widely according to classification, a substantial variation in the length of patient stay is observed.

Table 5 shows average annual patient days (calculated by multiplying bed capacity by census by 365). Among hospitals of the same size, regardless of class, there tends to be no signifi-

Table 3 *Annual hospital admissions*

Bed Capacity	Admissions		
	Government	Private, Nonprofit	Average
Under 50	1249	1385	1456
50-99	2695	2912	2786
100-199	6200	5702	5877
200-299	10,429	9241	9237
300-399	12,774	13,666	13,318
400-499	17,179	16,579	16,386
Over 499	23,651	24,791	23,778

Table 4 *Annual census (% of beds occupied)*

Bed Capacity	Average Census
Under 50	51%
50-99	61%
100-199	68%
200-299	74%
300-399	77%
400-499	78%
Over 499	82%

cant difference in average patient days. Comparison of this year's data with those from last year's SURVEY shows that, in general, patient days reported for 1983 operations are lower within each bed range and across class lines. The SURVEY data also indicate that federal facilities report the highest number of annual patient days, followed by government, private, nonprofit, and profit hospitals. It is to be expected that federal and government institutions report higher annual-patient-day figures because the illnesses treated therein usually require more lengthy therapy.

Table 5 *Annual patient days*

Bed Capacity	Annual Patient Days				Average
	Federal	Government	Profit	Private, Nonprofit	
Under 50	n/a	6502	6417	7174	6712
50-99	n/a	15,264	17,145	17,232	16,488
100-199	n/a	33,926	32,713	36,452	35,552
200-299	61,210	67,175	59,210	66,267	65,727
300-399	96,189	96,346	95,754	95,556	95,693
400-499	n/a	126,783	n/a	126,534	125,785
Over 499	214,032	270,676	n/a	197,840	225,919

Chart 3 *Hours per week pharmacies were open*
General

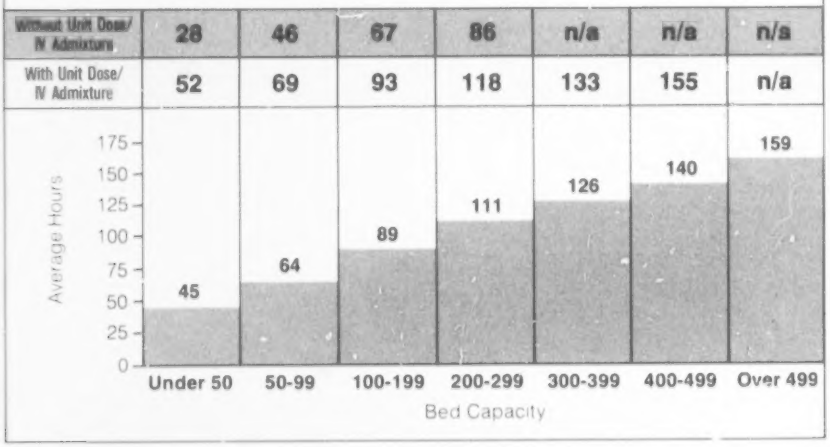
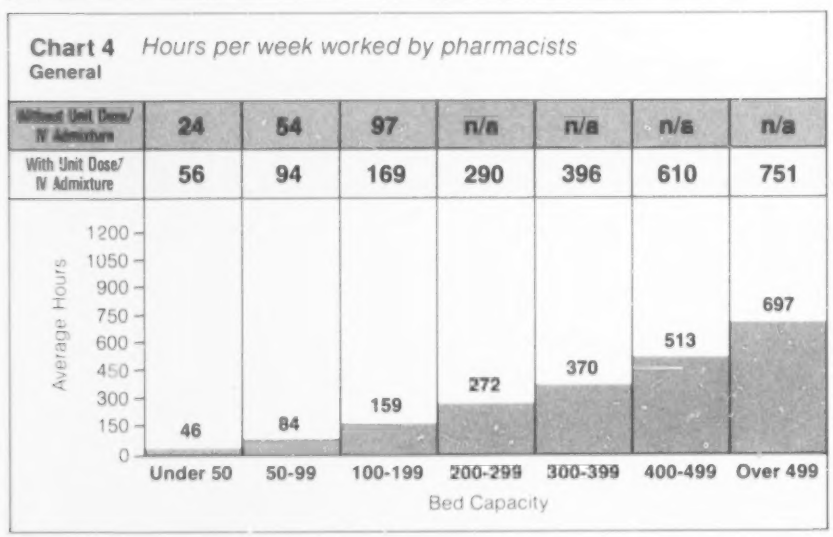


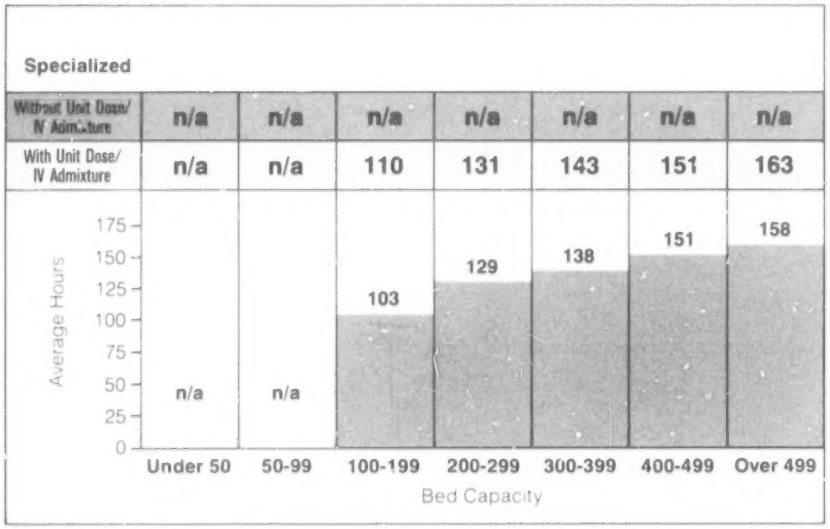
Chart 4 *Hours per week worked by pharmacists*
General

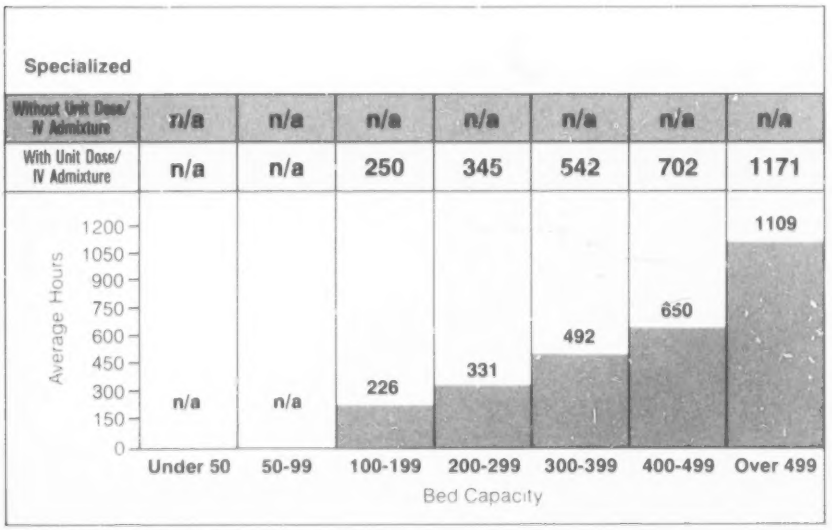


The average number of hours per week that pharmacies were open in general and specialized hospitals is shown in Chart 3. The impact that offering unit-dose and IV admixture services has on the number of hours worked is also presented. With increasing hospital size, pharmacies tend to stay open longer, regardless of profile. Pharmacies with unit-dose and IV admixture programs are also open longer as hospital size increases. Chart 3 shows that pharmacies with these services in specialized institutions report being open more hours than those in general hospitals at virtually every size range. One explanation for this difference may be the more complex nature of pharmacy services provided by specialized hospitals. A comparison of average hours open during 1983 with similar data from the previous year's SURVEY indicates that, at most size ranges, hours open increased somewhat.

Because pharmacies remain open longer in proportion to bed size, it is not surprising to observe a similar trend in hours worked by pharmacists and technicians (Charts 4 and 5 respectively). The addition of unit-dose and IV admixture services impacts pharmacist and technician work loads and results in increased hours worked in hospitals of all sizes, regardless of profile. This effect is most evident in the larger hospitals. It has been suggested that increased personnel needs to implement these programs are offset by significant improvements in both drug control and accuracy.

Worthy of note is the significant rise in pharmacist and technician hours required for the operation of pharmacies that provided unit-dose and IV admixture services in the largest general and specialized hospitals over the past several years. A comparison of 1976 data with current figures shows that all pharmacies reporting unit-dose and IV admixture services increased pharmacist hours 90.9 percent and technician hours 84 percent. This information suggests a continued expansion of these services in these hospitals.





A composite of pharmacy personnel hours worked per week is found in Charts 6 and 7. As expected, the hours each personnel group works rise in proportion to increasing hospital size. The pharmacy staff in specialized facilities tend to work more total hours than those in general hospitals of similar size. The proportion of pharmacist hours to total hours worked per week in general hospitals tends to rise with increasing bed capacity, whereas the proportion of technician hours remains relatively constant, and support personnel hours appear to decline. A different situation can be seen in specialized institutions; as bed capacity rises, the proportion of pharmacist hours to total hours tends to decline, whereas the share of technician and support personnel hours shows an increasing trend. Overall, in general and specialized hospitals of most sizes, hours worked by pharmacists, technicians, and support personnel have tended to rise over last year's figures.

The breakdown of pharmacist and technician hours spent on various functions is shown in Chart 7. Drug distribution (including IV admixture preparation) accounts for the major allocation of pharmacist and technician time in hospitals of all sizes, regardles of profile. In general hospitals with more than 100 beds, pharmacists spend about 74 percent of their time dispensing drugs, 16 percent performing management tasks, and 10 percent in clinical practice; technicians devote about 91 percent of their time to drug distribution. Pharmacists employed in specialized institutions with more than 100 beds also

Chart 5 *Hours per week worked by technicians*
General

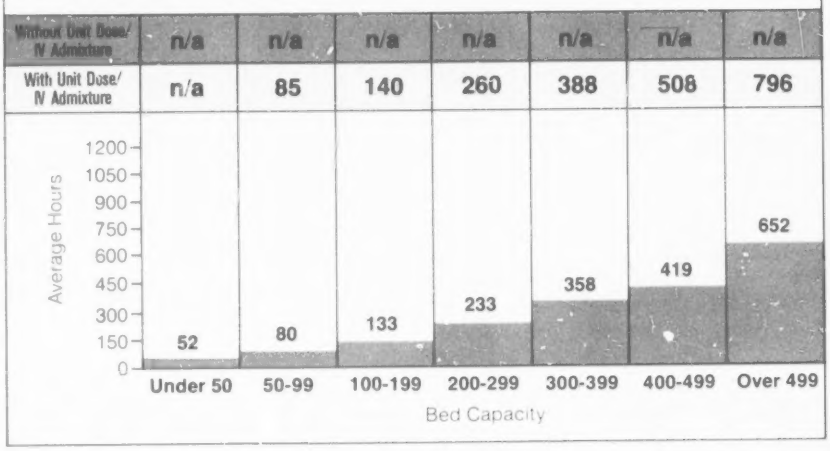


Chart 6 *Hours per week worked by pharmacy personnel*
General

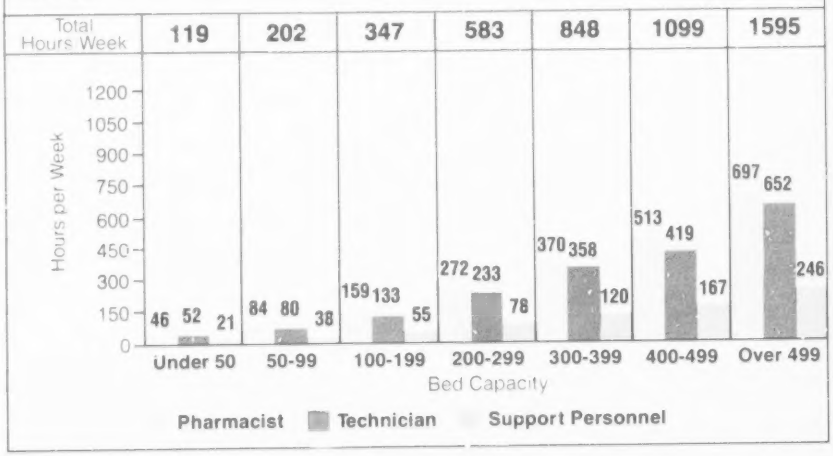
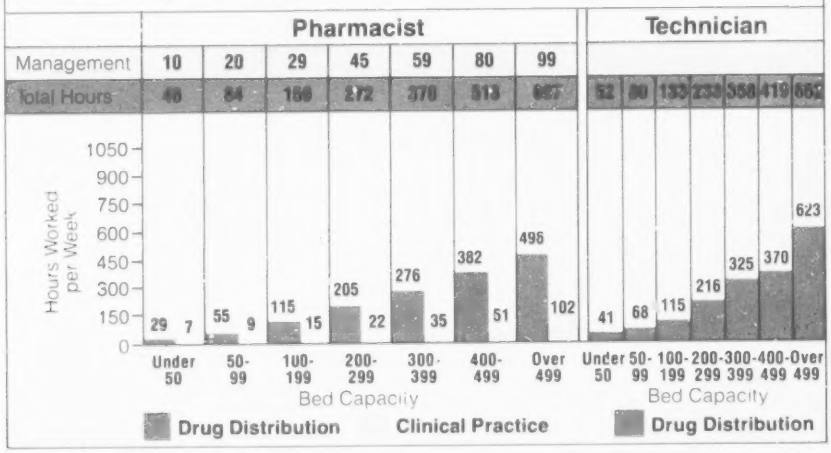
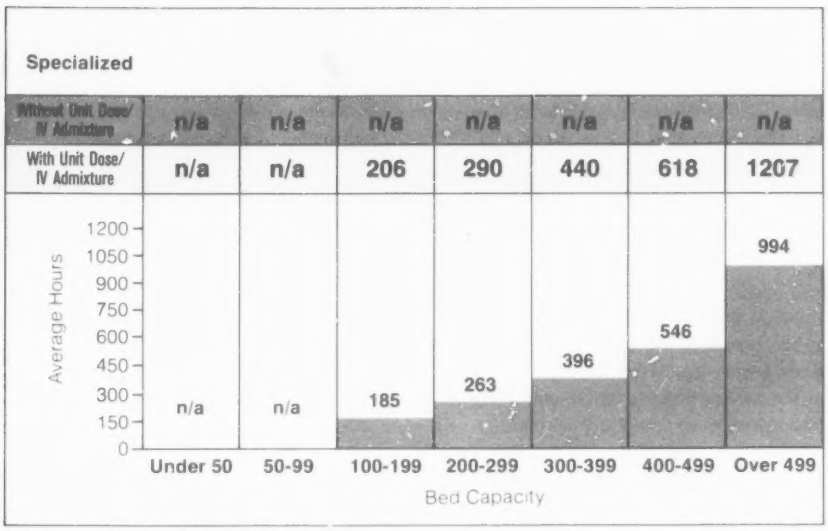
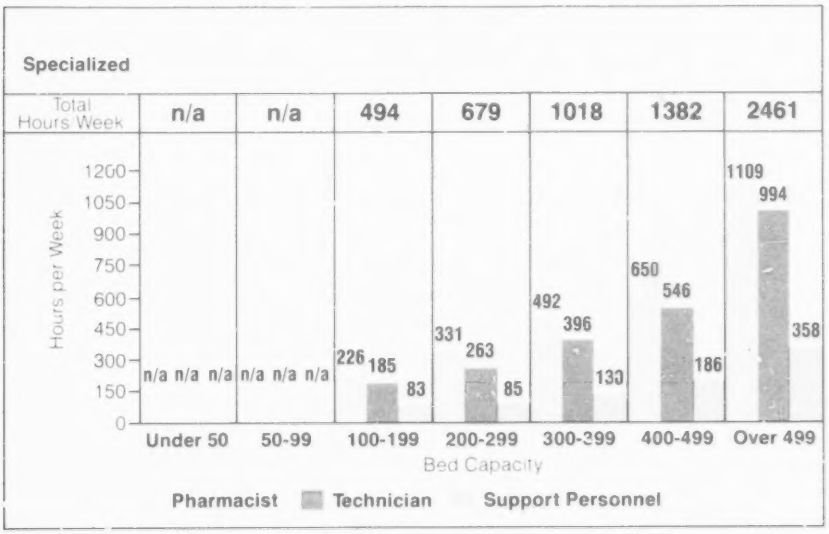
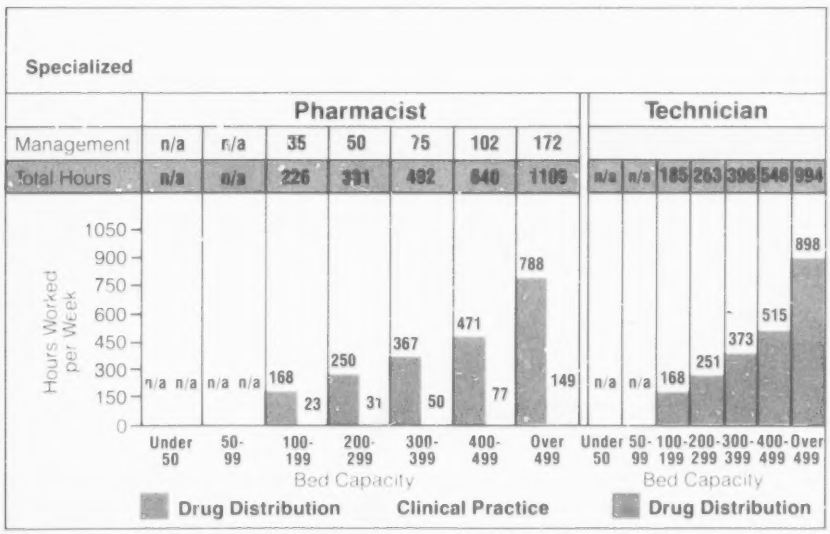


Chart 7 *Distribution of hours per week worked by pharmacists and technicians*
General









spend an average of 74 percent of their time in drug distribution, 15 percent in management duties, and 11 percent in clinical pharmacy practice. Further review of these data indicate that, in larger general and specialized hospitals, pharmacists are more involved in clinical practice and spend less of their time in drug distribution. This function seems to be accomplished more often by technicians—about 93 percent of their time is devoted to drug distribution. In the largest specialized hospitals, time spent by pharmacists in clinical practice and management increases dramatically, perhaps owing to the more sophisticated nature of patient services offered and more involved administrative tasks.

Over 77 percent of the hospital pharmacies responding to the LILLY HOSPITAL PHARMACY SURVEY use the unit-dose system as their primary method of drug distribution (covering at least 90 percent of the beds in these hospitals). Almost 24 percent favor a combination of unit-dose and traditional methods of dispensing. The floor-stock method of dispensing was reported about 11 percent of the time. The least-often-reported method of drug distribution is the traditional method. A comparison of these data with similar figures from previous SURVEYS indicates that both general and specialized hospitals are continuing to move away from the traditional and floor-stock methods of drug distribution in favor of the unit-dose system. It should be noted that both the traditional and floor-stock methods continue to be used in a limited way by the largest general and specialized hospitals. The data also imply a correlation between the degree of hospital specialization and the acceptance and implementation of the newer drug-delivery systems. A total of 1738, or 86.9 percent, of participating hospitals utilize the unit-dose system to some degree (up from 85.8 percent reported last year and 44.6 percent recorded for 1976). Of these, less than 2 percent dispense medication on a twice-daily basis, about 7 percent issue medication at intervals of more than 24 hours, and just over 90 percent dispense every 24 hours. The SURVEY data also show that, as the frequency of drug distribution decreases from a twice-daily to a more-than-24-hour basis, pharmacist, technician, and support personnel hours worked per week also decrease. Therefore, increasing the frequency of drug delivery has a significant impact on pharmacy staff work loads.

A total of 416 (19.8 percent) SURVEY participants indicated that they provided 24-hour pharmacy service (up from 18.6 percent). Pharmacists and technicians worked more hours in pharmacies offering 24-hour service than in pharmacies open fewer than 24 hours, regardless of hospital profile or size. The proportion of facilities offering 24-hour service increases as hospitals increase in bed capacity. Of participating general hospitals, 11.1 percent offered 24-hour pharmacy service, whereas 59.5 percent of specialized institutions said they provided 24-hour service (up from 9.6 percent and 56.3 percent respectively). The ratio of pharmacists to technicians in the larger general and specialized hospitals with 24-hour service is about 1:0.8, although this ratio has fluctuated at close to 1:1 over the past several years. Among all hospitals reporting to the SURVEY that offer 24-hour pharmacy service, the pharmacist-to-technician ratio averages close to 1:0.9.

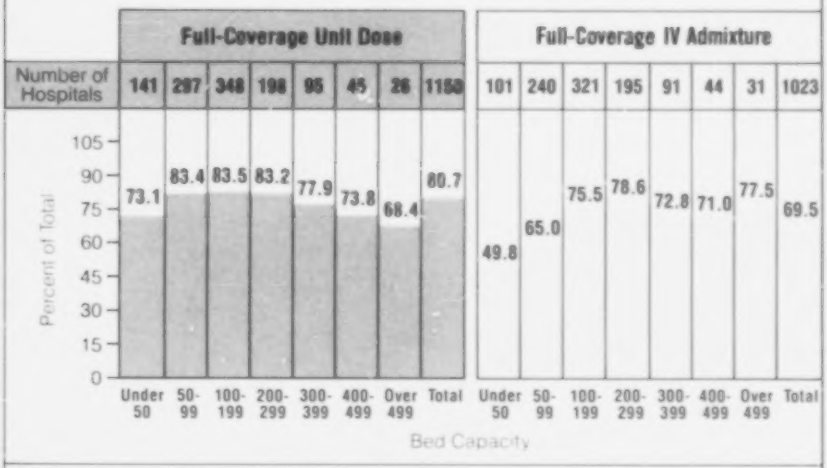
Chart 8 shows the number of hospitals offering unit-dose and IV admixture service to more than 90 percent of their patients (considered full coverage). A total of 1150 general hospitals (80.7 percent) indicated that they have total unit-dose service, and 1023 (69.5 percent) offer full-coverage IV admixture service. Among specialized hospitals, 299 (78.5 percent) have full-coverage unit-dose service and 293 (74.1 percent) offer total IV admixture service. Each of these services is offered by a greater percentage of hospitals than was reported last year, which suggests a continued expansion of these patient services by hospital pharmacists. Of the respondents, 1816 (92.7 percent) purchase pharmaceuticals in unit-dose packaging whenever possible (about the same percentage as reported last year).

A comparison of data in Chart 8 with similar information published in earlier editions of the SURVEY reveals the following: (1) The distribution of hospitals with full-coverage programs is quite similar among all profiles and sizes; (2) total unit-dose and IV admixture services are reported by more general and specialized hospitals; and, (3) generally, a higher percentage of specialized than general institutions offer these services on a full-coverage basis.

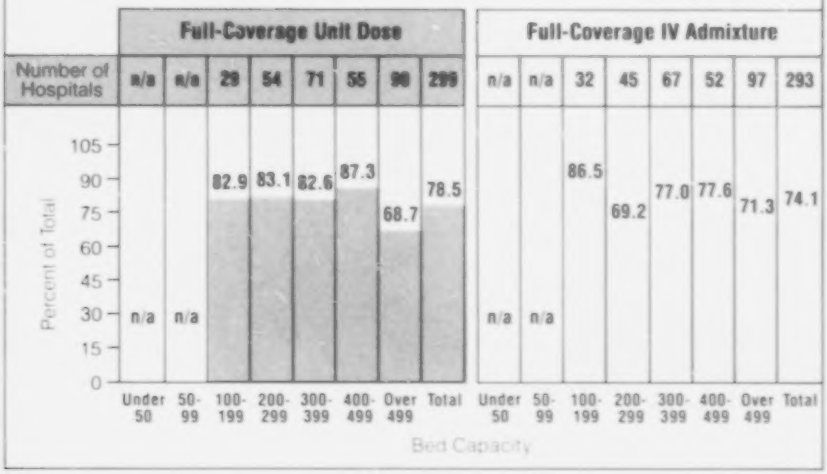
Almost 1180 hospitals (56 percent) reported having both total unit-dose and full-coverage IV admixture services (up from 51.2 percent). A total of 893 general hospitals (60.3 percent) and 249 specialized facilities (62.3 percent) provide both services to their entire patient population.

Chart 8 *Full-coverage unit-dose and IV admixture services*

General



Specialized



Inventory and Purchases

Average hospital pharmacy inventory and purchase data tabulated for general and specialized hospitals is found in Table 6. It is apparent that, as hospital size increases, average inventory and purchases rise. A comparison of 1983 data with figures reported last year shows that inventory and purchases generally increased for most general and specialized hospitals of all bed ranges. The estimated inventory turnover ratio tends to indicate continued improvement in both general and specialized institutions as bed size rises, when compared with similar figures reported the previous year. Specialized hospitals appear to have higher inventory turnover ratios in comparison with similar-sized general institutions. These facilities also reported higher figures for inventory and purchases at every bed range. This may be the result of the type and amount of pharmaceuticals needed to support the kinds of services offered by specialized hospitals. Because very few specialized hospitals reporting had fewer than 100 beds, many of the tables that follow do not contain data for these lower bed ranges.

Tables 6 and 7 also express inventory and purchase statistics on the basis of annual patient days. In general hospitals (Table 6), inventory per annual patient day declines as hospital size increases. Purchases per annual patient day, on the other hand, tend to be relatively stable. In comparison with similar figures from last year's SURVEY, inventory and purchase figures are up for all bed ranges in general hospitals. In specialized facilities, inventory per annual patient day appears to be relatively stable, regardless of bed size. Purchases per annual patient day, however, generally rise as the size of the institution grows. Specialized hospitals also tend to have higher values for inventory and purchases per annual patient day in comparison with similar values reported last year.

Table 7 presents statistics for hospital pharmacies with inventory and purchases that include IV fluids, irrigation solutions, and blood fractions. It is not surprising that pharmacies stocking these items tend to have higher inven-

Table 6 *Pharmacy inventory and purchases*

General

Bed Capacity	Inventory	Purchases	Inventory Turnover Ratio*	Annual Patient Days	Inventory per Annual Patient Day	Purchases per Annual Patient Day
Under 50	$ 25,249	$ 107,311	4.3	6,649	$3.80	$16.14
50-99	38,946	198,191	5.1	16,198	2.40	12.24
100-199	69,120	426,399	6.2	34,513	2.00	12.35
200-299	111,501	763,731	6.8	64,491	1.73	11.84
300-399	154,282	1,142,807	7.4	94,798	1.63	12.06
400-499	193,905	1,494,105	7.7	124,845	1.55	11.97
Over 499	264,144	2,118,419	8.0	171,305	1.54	12.37

Specialized

Bed Capacity	Inventory	Purchases	Inventory Turnover Ratio*	Annual Patient Days	Inventory per Annual Patient Day	Purchases per Annual Patient Day
Under 50	n/a	n/a	n/a	n/a	n/a	n/a
50-99	n/a	n/a	n/a	n/a	n/a	n/a
100-199	$ 84,515	$ 653,580	7.7	40,994	$2.06	$15.94
200-299	137,599	1,025,450	7.5	68,426	2.01	14.99
300-399	177,797	1,449,312	8.2	96,149	1.85	15.07
400-499	257,592	1,999,712	7.8	123,327	2.09	16.21
Over 499	439,400	3,831,506	8.7	212,682	2.07	18.02

*Estimated inventory turnover ratio = $\frac{\text{Year's purchases at cost}}{\text{Average inventory at cost}}$

tory and purchase figures both in absolute terms and as expressed in terms of annual patient days.

A total of 395 (21.4 percent) respondents said that medical school faculty are on staff at their hospital. The influence of faculty on pharmacy inventory and purchase figures in general and specialized institutions is shown in Table 8. Inventory and purchase values tend to be higher in hospitals with medical school faculty on staff than in those without, probably because there is a tendency to involve future physicians in various kinds of diagnostic and medical treatment decisions that often result in an expanded drug formulary. Specialized hospitals having between 300 and 500 beds with medical school faculty on staff reported inventory and purchase figures about one-third higher than those of similar-sized facilities without medical school faculty.

A total of 787 hospital pharmacy managers (39.5 percent) indicated that their inventory and purchase figures included such items as radiographic agents, anesthetic fluids, special diet products, and hyperalimentation materials, which substantially affect the dollar amounts reported. When SURVEY data are used for comparative analysis, average inventory and purchase figures should be increased somewhat to compensate for the cost of these items if they are a part of the normal inventory.

The percentages of purchases of pharmaceuticals and related items from wholesalers by hospital pharmacy departments are tabulated below. These data reflect percentage purchases according to bed capacity for operating years 1983 and 1982.

Table 7 *Pharmacy inventory and purchases that include IV fluids, irrigation solutions, and blood fractions*

General

Bed Capacity	Inventory	Purchases	Inventory Turnover Ratio*	Annual Patient Days	Inventory per Annual Patient Day	Purchases per Annual Patient Day
Under 50	n/a	n/a	n/a	n/a	n/a	n/a
50-99	$ 45,061	$ 251,890	5.6	15,413	$2.92	$16.34
100-199	83,543	516,942	6.2	36,423	2.29	14.19
200-299	119,896	861,014	7.2	61,686	1.94	13.96
300-399	156,689	1,398,085	8.9	92,929	1.69	15.04
400-499	n/a	n/a	n/a	n/a	n/a	n/a
Over 499	n/a	n/a	n/a	n/a	n/a	n/a

Specialized

Bed Capacity	Inventory	Purchases	Inventory Turnover Ratio*	Annual Patient Days	Inventory per Annual Patient Day	Purchases per Annual Patient Day
Under 50	n/a	n/a	n/a	n/a	n/a	n/a
50-99	n/a	n/a	n/a	n/a	n/a	n/a
100-199	n/a	n/a	n/a	n/a	n/a	n/a
200-299	n/a	n/a	n/a	n/a	n/a	n/a
300-399	$235,249	$1,720,945	7.3	93,539	$2.52	$18.40
400-499	288,807	2,190,646	7.6	119,247	2.42	18.37
Over 499	632,358	5,141,348	8.1	222,788	2.84	23.08

Wholesaler Purchases (%)

Bed Capacity	1983 (2017 Hospitals)	1982 (1896 Hospitals)
Under 50	65%	56%
50-99	65%	53%
100-199	62%	52%
200-299	55%	44%
300-399	53%	44%
400-499	47%	39%
Over 499	37%	32%

Consistent with previous trends, as hospital size grows, the percentage of pharmaceuticals and related items bought from wholesalers declines. Noteworthy, however, is that wholesaler purchase percentages increased across all bed ranges when compared with the previous year's figures. Goods obtained from wholesalers during 1983 by hospitals with fewer than 200 beds amounted to over 60 percent of total pharmaceutical purchases, whereas hospitals in the 200-to-500-bed range order, on average, about half of their drugs and related items from wholesalers. The largest institutions appeared to use wholesalers for about one-third of their hospital pharmacy stock. Overall, 57 percent of purchases by hospital pharmacies were made through the wholesaler during 1983 (47 percent was the figure reported for 1982). This suggests a greater reliance on the wholesaler as a provider of the pharmaceutical products required to maintain adequate patient service.

Profit hospitals order 69 percent of their pharmacy merchandise through a wholesaler (up from 57 percent reported last year). Private, nonprofit institutions purchase 59 percent of goods via the wholesaler (up from 51 percent in 1982). Government facilities buy 53 percent of their stock from a wholesaler—an increase of 8 percent over last year's figure. Federal hospitals obtain only 7 percent from wholesalers—1 percent less than last year's figure. The use of depot and contract purchase agreements probably accounts for this low figure. The percentage of wholesaler purchases is generally similar for both general and specialized hospitals within each bed range.

Again this year, two groups of large (over 500-bed) private, nonprofit, specialized hospitals reporting selected operating figures for two consecutive years were compared to examine the influence of wholesaler purchasing procedures on their annual inventory turnover rate (Table 9). Hospitals buying between 20 and 39 percent of their pharmacy department needs from wholesalers reported a higher value for both inventory and purchases for 1983 than in 1982; however, their inventory turnover rate rose from 7.3 to 8.2 times, which suggests improved inventory control. The hospitals that purchased over 39 percent of their pharmaceuticals and related items from wholesalers also reported a higher figure for inventory and purchases for 1983; however, this group posted figures for inventory and purchases lower than hospitals which ordered less than 39 percent of their needs from wholesalers. The result is that the wholesaler-oriented hospitals had the highest inventory turnover rate—8.6 times per year. The data in Table 9 also indicate that the median wholesaler purchase percentage was unchanged in both hospital groups from year to year.

A total of 1904 (91.1 percent) participating hospital pharmacies belong to a cooperative purchasing group (up from 90.4 percent last year). Ninety-four percent of general hospitals said they are cooperative-affiliated (up 1 percent from the previous year), and over 91 percent of specialized institutions indicate membership in cooperative buying organizations (about the same percentage figure as reported a year ago). A closer review of the data shows that almost 72 percent of the

Table 8 *Impact on pharmacy inventory and purchases of medical school faculty on staff*

With faculty

Bed Capacity	General		Specialized	
	Inventory	Purchases	Inventory	Purchases
Under 50	n/a	n/a	n/a	n/a
50-99	n/a	n/a	n/a	n/a
100-199	$ 85,025	$ 612,171	n/a	n/a
200-299	120,813	862,976	$138,113	$1,051,462
300-399	164,636	1,294,409	208,826	1,591,501
400-499	200,558	1,591,016	306,677	2,261,569
Over 499	308,820	2,412,581	460,768	4,002,899

Without faculty

Bed Capacity	General		Specialized	
	Inventory	Purchases	Inventory	Purchases
Under 50	$ 25,338	$ 107,796	n/a	n/a
50-99	38,831	198,076	n/a	n/a
100-199	67,999	413,317	$ 81,106	$ 639,677
200-299	110,308	751,020	139,003	1,036,599
300-399	151,581	1,103,259	158,106	1,359,076
400-499	200,351	1,493,068	206,924	1,729,408
Over 499	n/a	n/a	377,969	3,338,752

members of cooperatives buy over one-half of their drug-related products through a buying group. SURVEY data also reveal that over 98 percent of respondents who belong to cooperatives buy some pharmaceuticals, and over 73 percent also purchase IV fluids and related accessories through these buying organizations. Only about 8 percent of goods purchased through cooperatives are nonpharmaceutical items. The array of goods purchased through buying groups has not changed significantly from the last reporting period. A total of 180 (10.2 percent) cooperative-affiliated hospitals indicated that their inventory was held and delivered by the buying organization (down from 11.9 percent last year).

The breakdown by region of hospitals that are members of cooperative purchasing groups is as follows:

West North Central	94.8%
East North Central	93.7%
East South Central	92.0%
Pacific	90.7%
New England	90.2%
South Atlantic	90.1%
Middle Atlantic	88.6%
Mountain	87.5%
West South Central	87.3%

Interestingly, the rate of buying group membership was greater than 90 percent in six of the nine regions. It is also noteworthy that the East South Central States reported the largest rate of increase in cooperative membership, and the New England States posted the greatest decline in buying-group affiliation when compared with the previous year.

Table 9 *Impact of wholesaler purchasing on inventory turnover in identical groups of large specialized hospitals*

	1983		1982	
	Wholesaler Purchases (%)		Wholesaler Purchases (%)	
	Group I	Group II	Group I	Group II
	20-39%	over 39%	20-39%	over 39%
Median	30%	60%	30%	60%
Inventory	$ 498,771	$ 349,550	$ 326,145	$ 280,814
Purchases	$4,113,596	$2,998,015	$2,373,991	$2,312,970
Turnover rate	8.2 times	8.6 times	7.3 times	8.2 times

Outpatient Pharmacies

Outpatient pharmacy service was provided by 480 respondents (41.1 percent), a figure somewhat higher than the 39.2 percent reported in last year's SURVEY. Table 10 shows average inventory, purchases, central pharmacy and outpatient pharmacy hours open, and pharmacist and technician hours worked per week in both general and specialized hospitals with outpatient pharmacies. At all bed ranges, regardless of profile, pharmacies with outpatient services reported higher figures for inventory and purchases than the averages for the total sample. Pharmacist and technician hours were also higher within virtually every bed range for hospitals with outpatient pharmacies than for the total sample. Specialized institutions in the largest bed range reported inventory and purchase figures about 60 percent higher than those for general hospitals of similar size. Specialized hospitals of this size also posted technician and pharmacist hours worked at 40 to 50 percent greater than their general counterparts, although they were open 11 percent fewer hours. One explanation may be that specialized hospitals tend to offer more complex and expanded services in their outpatient pharmacies. About one-third of general hospitals reported having outpatient pharmacy service, whereas two-thirds of specialized facilities offer such a service. Noteworthy is that average outpatient pharmacy hours open in specialized hospitals in the 200 to 300-bed range were highest among reporting hospitals, regardless of profile and size. Closer review of SURVEY data indicates that more hospitals in this group reported 24-hour outpatient pharmacy service than those in other bed ranges.

The SURVEY data show that virtually all reporting federal hospitals offer outpatient pharmacy service, whereas one in three government and profit hospitals does so. About 40 percent of private, nonprofit facilities reported outpatient pharmacy service. Of hospitals with outpatient pharmacy service, 23.7 percent conduct operations in areas separate from the central pharmacy. Approximately one in three general and specialized hospitals with outpatient pharmacy service purchases a separate inventory for its outpatient units. In addition, SURVEY data indicate that psychiatric hospitals with outpatient pharmacy service tend not to separate their outpatient

Table 10 *Average operating data for hospitals with outpatient pharmacies*

General

Bed Capacity	Inventory	Purchases	Central Pharmacy Hours Open	Outpatient Pharmacy Hours Open	Pharmacist Hours/Week	Technician Hours/Week
Under 50	$ 30,615	$ 186,061	45	45	55	79
50-99	45,859	281,502	69	62	111	112
100-199	77,795	501,529	94	83	187	157
200-299	114,602	774,157	117	77	298	231
300-399	165,114	1,191,149	130	89	401	393
400-499	216,848	1,634,825	145	98	583	479
Over 499	290,936	2,326,448	148	101	759	731

Specialized

Bed Capacity	Inventory	Purchases	Central Pharmacy Hours Open	Outpatient Pharmacy Hours Open	Pharmacist Hours/Week	Technician Hours/Week
Under 50	n/a	n/a	n/a	n/a	n/a	n/a
50-99	n/a	n/a	n/a	n/a	n/a	n/a
100-199	n/a	n/a	n/a	n/a	n/a	n/a
200-299	$143,930	$1,127,794	135	111	351	284
300-399	184,694	1,612,237	141	89	566	447
400-499	270,682	2,098,642	146	85	709	593
Over 499	455,778	3,946,915	159	91	1161	1046

drug inventory from central pharmacy stock.

One phase of the employee benefits program in many hospitals is employee prescription service. An attempt was made to quantify this service on the basis of the assumption that hospitals with outpatient pharmacy service also filled employee prescriptions. Furthermore, some participants without outpatient pharmacy service reported dispensing employee prescriptions. On the basis of these data, it was found that over 56 percent of reporting hospitals provide their employees with some type of prescription service. It was calculated that, on average, 79 employee prescriptions were dispensed per week in hospitals averaging about 200 beds—down from 96 reported for similar-sized hospitals the previous year.

Satellite pharmacies are in operation in 324 (15.6 percent) SURVEY hospitals (up from 13 percent recorded for 1982). Of these, 8.5 percent are in general hospitals (up from 6.2 percent), and 42.2 percent are in specialized institutions (up from 37.1 percent). Since the total number of hospitals reporting satellite pharmacy data was too small to allow tabulation according to the usual bed ranges, the information in Table 11 reflects cumulative data for general and specialized hospitals of all bed ranges within these profiles. Generally, facilities with satellite pharmacy service tend to have a higher value for inventory and purchases as well as for pharmacist and technician hours worked per week than the averages for the entire sample. Noteworthy are specialized hospitals in the largest bed range. These hospitals reported an average inventory of over $512,000 and average purchases of over $4,333,000; pharmacists worked 1269 hours per week, and technicians worked 1165 hours. The figures for pharmacist and technician hours worked are about 15 percent higher than for the total sample and are higher than those reported last year for comparable hospitals. These data suggest that patient services provided in this kind of hospital are probably more sophisticated and of greater magnitude than are those in hospitals without satellite pharmacy service. SURVEY data also indicate that almost 45 percent of hospitals reported one satellite pharmacy, and another 25 percent operate two. Close to 78 percent of general hospitals reporting satellite operations have one or two units, whereas over 60 percent of specialized institutions have one or two satellite pharmacies. It should also be noted that about one-quarter of specialized hospitals reporting satellites had four or more units in operation. It was interesting to observe that there appeared to be a significant increase in the number of respondents who reported the utilization of a decentralized-mobile-cart system of drug distribution within their hospitals during 1983.

Table 11 *Average operating data for pharmacies with satellites*

Profile	Avg. Bed Capacity	Inventory	Purchases	Pharmacist Hours/Week	Technician Hours/Week
General	316	$148,197	$1,182,949	444	411
Specialized	565	361,756	3,025,231	959	844

Pharmacy Staff Payroll

Average annual payroll for each pharmacy department staff component as well as total annual staff payroll are presented in Table 12. Calculating the pharmacist hourly payroll figure provides a number useful for comparison. Since it is a composite figure, it is not a measure of actual salaries. This calculated statistic tends to fluctuate across most bed ranges in general hospitals. In specialized institutions, pharmacist hourly payroll figures appear to be relatively stable in hospitals with more than 100 beds. Similarly, technician hourly payroll seems to be relatively stable in specialized hospitals with over 200 beds. Support personnel hourly payroll, too, appears to stabilize in specialized institutions having over 100 beds. In both general and specialized facilities, the composite pharmacist hourly figure tends to be in the $14 range in hospitals with more than 100 beds. Pharmacist hourly figures are generally higher in specialized hospitals when compared with those in similar-sized general institutions. Technician hourly payroll also appears to be higher in specialized hospitals than in general facilities of similar size. When support personnel hours and payroll are evaluated, it should be kept in mind that these data may be influenced, to some degree, by the volunteer work force present in many hospitals. The SURVEY data suggest that larger, more sophisticated hospitals that offer expanded services appear to report higher professional and nonprofessional hourly figures than do smaller hospitals with limited services.

The SURVEY data reveal that pharmacists and technicians are employed about 1.7 and 1.5 hours per week per occupied bed respectively, about the same figures as reported last year. A review of similar data from previous editions of the SURVEY suggests that pharmacy services provided to hospital patients are continuing to grow.

A portion of pharmacist hours funded by an outside source were reported by 3.7 percent of participants (somewhat lower than the 4 percent reported last year). The source of these monies generally falls into the category of grants and/or stipends. The respondents in this SURVEY also indicated that about 71 percent of the funded hours are allocated to clinical pharmacy practice.

Table 12 *Pharmacy personnel work load and payroll*

General

Bed Capacity	Pharmacist Hours/Week	Annual Pharmacist Payroll	Technician Hours/Week	Annual Technician Payroll	Support Personnel Hours/Week	Annual Support Personnel Payroll	Total Annual Payroll
Under 50	46	$ 34,849	52	$ 17,878	21	$ 5,624	$ 58,351
50-99	84	57,779	80	23,280	38	10,324	91,383
100-199	159	118,250	133	71,319	55	16,512	206,081
200-299	272	200,358	233	77,599	78	26,140	304,097
300-399	370	291,759	358	122,180	120	38,531	452,470
400-499	513	350,875	419	128,981	167	51,947	531,803
Over 499	697	516,894	652	218,285	246	67,147	802,326

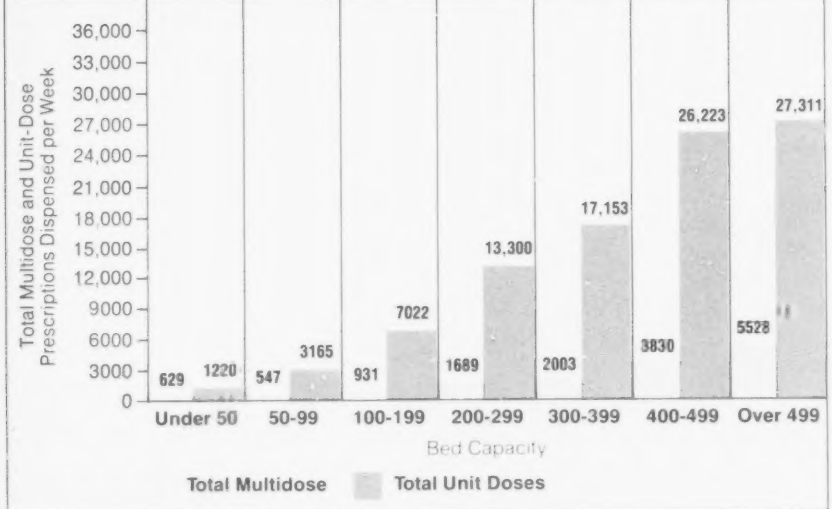
Specialized

Bed Capacity	Pharmacist Hours/Week	Annual Pharmacist Payroll	Technician Hours/Week	Annual Technician Payroll	Support Personnel Hours/Week	Annual Support Personnel Payroll	Total Annual Payroll
Under 50	n/a	n/a	n/a	n/a	n/a	n/a	n/a
50-99	n/a	n/a	n/a	n/a	n/a	n/a	n/a
100-199	226	$167,753	165	$ 55,295	83	$ 24,176	$ 247,224
200-299	331	266,717	263	95,846	85	27,105	389,668
300-399	492	378,790	396	142,029	130	38,655	559,474
400-499	650	495,549	546	200,602	186	60,944	757,095
Over 499	1109	831,849	994	357,339	358	121,654	1,310,842

Chart 9 *Breakdown of weekly prescription activity*

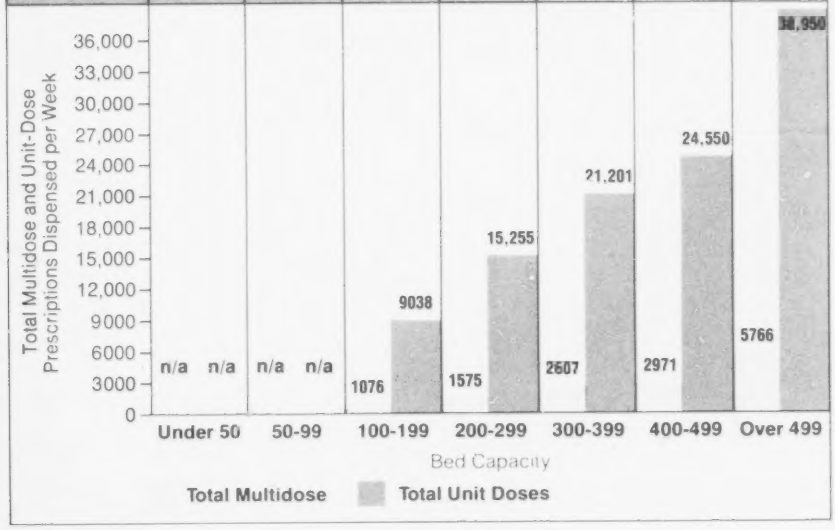
General

	Multidose Prescriptions per Week						
Inpatient	111	268	580	1249	1375	2968	3571
Outpatient	518	279	351	440	628	862	1957



Specialized

	Multidose Prescriptions per Week						
Inpatient	n/a	n/a	784	1336	1952	1894	3445
Outpatient	n/a	n/a	292	239	655	1077	2321



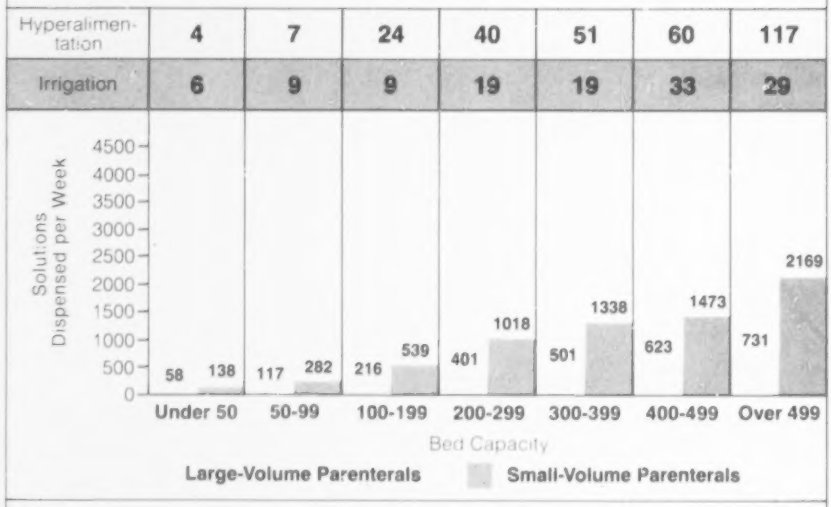
A breakdown of weekly prescription activity is presented in Chart 9. These data include information on the number of inpatient and outpatient multidose and unit-dose prescriptions dispensed per week. Overall, the number of inpatient and outpatient prescriptions tends to increase as hospital size grows. As bed capacity increases, prescription activity tends to rise at a greater rate in specialized hospitals than in general facilities. A comparison with similar statistics from last year's SURVEY indicates an overall reduction in multidose and unit-dose prescription activity in both general and specialized hospitals with fewer than 400 beds; however, hospitals with more than 400 beds reported an increase in overall prescription activity. At most bed ranges, specialized institutions tend to dispense more unit-dose prescriptions than do general hospitals. However, the rate of increase of unit-dose dispensing among general and specialized hospitals with fewer than 400 beds is quite similar. When evaluating work loads, hospital pharmacy managers usually examine both the total inpatient and outpatient multidose prescription activity and the number of unit-dose medication requests as well as the number of hyperalimentation, IV admixture, and irrigation solutions dispensed.

Chart 10 summarizes the number of hyperalimentation, irrigation, and IV admixture preparations dispensed per week. A total of 1664 participants (about 80 percent—up from 78 percent reported last year) provide some degree of parenteral admixture service. Consistent with trends reported in earlier editions of the SURVEY, as bed capacity increases, the average number of hyperalimentation, irrigation, and IV admixture solutions tends to increase in both general and specialized institutions. Specialized hospitals dispense the largest number of these preparations as compared with general hospitals at virtually every bed range. This is probably the result of the more serious nature of the illnesses treated in these hospitals. Overall, when the parenteral prescription activity shown in Chart 10 is compared with similar data from last year's SURVEY, there appears to be an increase in activity among general hospitals of most sizes. An increase was also noted among specialized institutions with more than 300 beds, whereas those in the lower bed ranges tended to report reduced parenteral preparation activity. The greater volume of IV admixture and hyperalimentation preparations in the larger general and specialized hospitals contributes to the generally higher personnel requirements mentioned earlier.

Inpatient and outpatient weekly prescription activity is shown in Table 13. Federal facilities continue to generate the largest volume of outpatient prescriptions as compared with the total sample. Private, nonprofit hospitals reported the most inpatient prescription activity. Profit institutions posted the lowest level of both inpatient and outpatient prescription activity. Overall, federal hospitals reported the highest combined weekly prescription volume, followed closely by private, nonprofit institutions.

Chart 10 *Hyperalimentation, irrigation, and IV admixture solutions dispensed per week*

General



Specialized

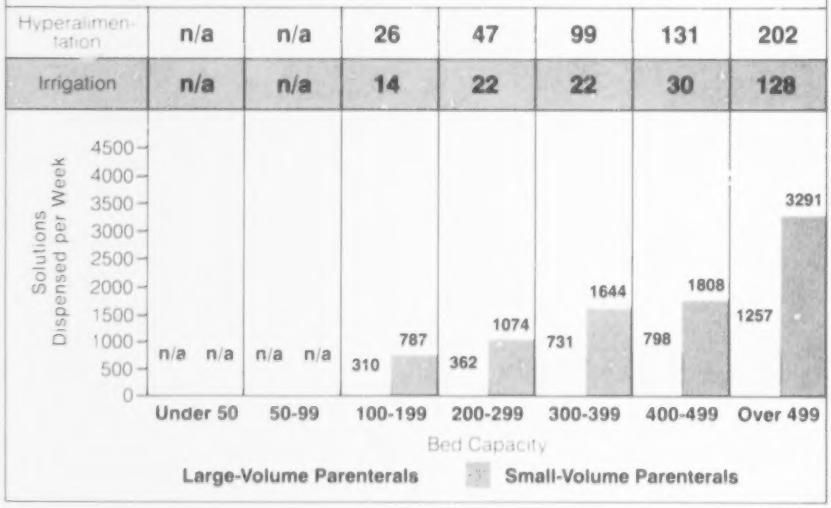


Table 13 *Weekly prescription volume*

Prescriptions	Federal	Government	Profit	Private, Nonprofit
Inpatient	11,170	7749	7581	12,740
Outpatient	4624	778	123	287
Total	15,794	8527	7704	13,027

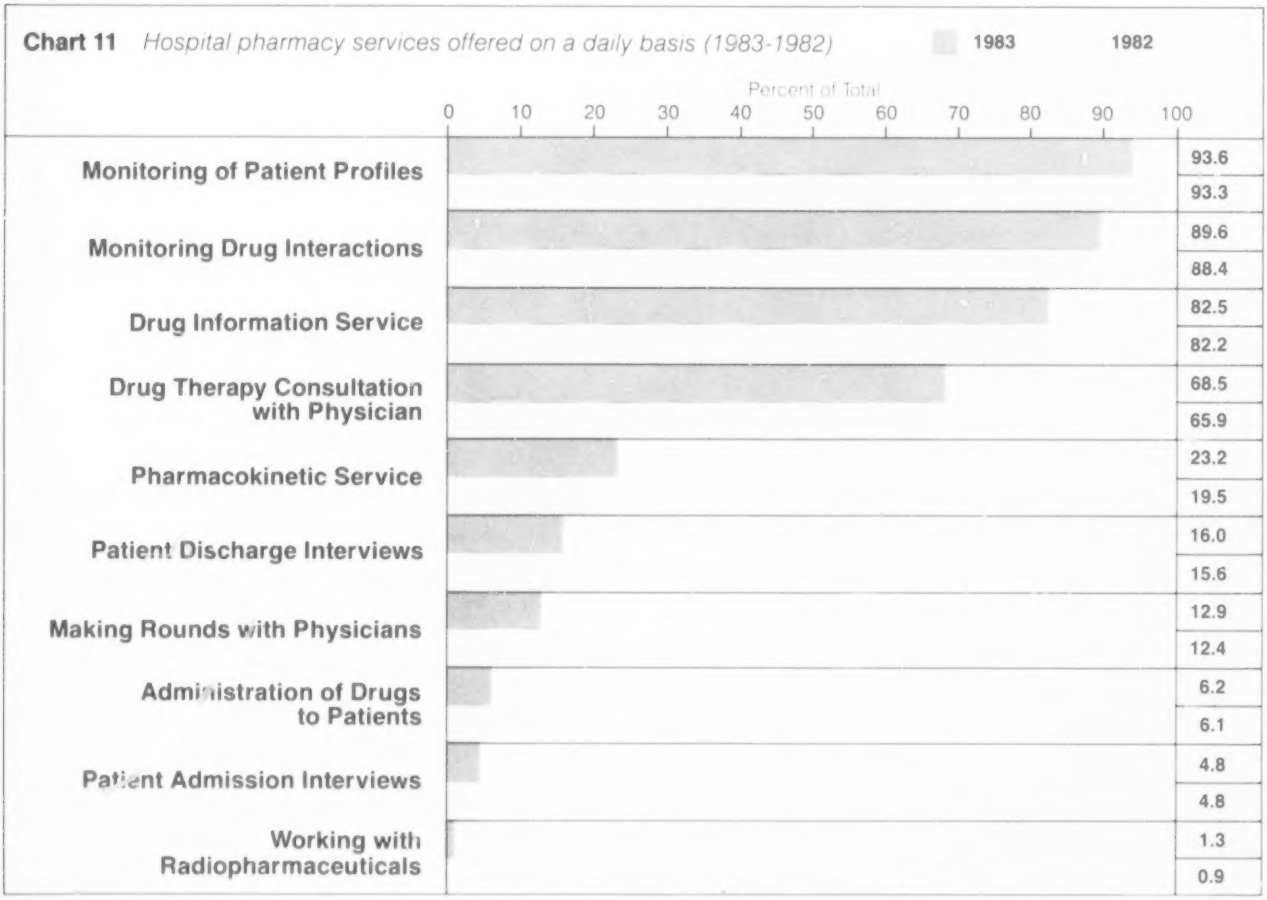
Pharmacy services performed on a daily basis by SURVEY respondents are listed in Chart 11. These services are ranked according to the percentage of total mentions in the sample and are unchanged from the previous year's ranking. A review of Chart 11 suggests that hospital pharmacies are continuing to expand their clinically oriented services virtually "across the board." The fact that all services, except patient admission interviews, reported higher percentage figures for 1983 than for the year earlier supports this assertion. It is interesting to note that pharmacokinetic service increased by a greater margin than any other pharmacy service reported. If current trends continue, it would be expected that pharmacokinetic service will be available in one of four hospitals in the near future. In support of this projection is the fact that this service has grown, percentagewise, more than threefold since 1979 (from 7.7 to 23.2 percent this year).

SURVEY participants were asked whether specific pharmacy services are regularly offered in their hospitals. The percentage of general and specialized hospitals providing these services are tabulated below:

	Percent of Total	
Service Available	**General**	**Specialized**
In-service education	86.6%	90.3%
Drug utilization review	87.8%	84.5%
Regular pharmacy bulletin	62.6%	82.0%
Training program for students	52.4%	70.8%
Responding to CPR attempts	31.1%	26.3%

This information suggests that general and specialized hospitals are involved to a similar extent in providing in-service education, drug utilization review, and CPR-attempts service. Publication of a regular pharmacy bulletin and provision of training programs for students are more frequently associated with specialized institutions than with general hospitals. Only in-service education was reported by a smaller percentage of general hospitals during 1983 as compared with the previous year. In specialized hospitals, most services showed reduced participation when compared with similar figures reported for 1982; the exception was the regular pharmacy bulletin.

Chart 11 *Hospital pharmacy services offered on a daily basis (1983-1982)*



Geographic Data

Table 14 shows a summary of average bed capacity, inventory, purchases, annual patient days, census, pharmacy hours open, and pharmacist, technician, and support personnel hours worked per week, according to geographic region (see accompanying map). The Middle Atlantic States have consistently reported the highest average bed capacity, annual patient days, and census figures. This may be due, in part, to the fact that hospitals in this region include more psychiatric, rehabilitation, and long-term-care institutions, which generally are larger in size and whose patients tend to remain in the hospital for longer periods of time. The Mountain States reported the lowest figures among all regions for bed capacity, inventory, purchases, annual patient days, and technician and support personnel hours worked per week. The East North Central States reported being open the greatest number of hours, whereas the New England States posted the fewest pharmacy hours open. The East North Central region had the highest number of pharmacist and support personnel hours worked, which is not surprising since this region reported the most hours open. The New England States reported the lowest figure for pharmacy hours. Technician hours worked were highest in the South Atlantic States. The highest inventory and purchase values were posted by the East North Central States. The Mountain States reported the highest inventory figures per occupied bed, whereas the West South Central States recorded the highest purchase values per occupied bed. The Middle Atlantic States posted the lowest inventory and purchase figures per occupied bed. In comparison with last year's data, it is interesting to note that the census figure in all regions, except the East South Central States, fell somewhat during 1983. Inventory values were higher this year in only four of the nine regions as compared with the previous year, whereas purchases rose in all regions except one.

Table 14 *Geographic summary of selected operating data*

Region	Bed Capacity	Inventory	Purchases	Annual Patient Days	Percent of Census	Pharmacy Hours Open	Pharmacist Hours/ Week	Technician Hours/ Week	Support Hours/ Week	Number of Hospitals Reporting
New England States	234	$107,780	$ 687,838	68,763	76%	81	252	225	99	143
Middle Atlantic States	348	146,126	956,914	110,340	83%	89	305	206	99	272
East North Central States	261	157,917	1,062,784	70,893	69%	106	322	313	141	431
West North Central States	201	89,942	644,061	53,396	61%	84	214	206	95	269
South Atlantic States	281	128,254	1,028,894	78,336	71%	102	316	362	135	286
East South Central States	230	101,977	869,870	66,589	71%	101	262	255	110	140
West South Central States	196	113,015	884,747	53,604	65%	94	240	234	120	199
Mountain States	144	83,225	590,743	37,834	62%	90	218	147	94	105
Pacific States	221	96,121	776,718	59,532	63%	102	301	254	114	248
United States Average	**246**	**121,552**	**879,431**	**61,955**	**69%**	**96**	**281**	**263**	**116**	

Hospital Pharmacy Participants—One Year Later

A summary of selected operating statistics of hospital pharmacies contributing figures for both 1982 and 1983 is presented in Table 15.

The average bed capacity in participating hospitals fell 2.7 percent during 1983—from 258 to 251. Census and admissions also declined, as did length of patient stay, from 7.4 to 7.0 days.

The hours open for the central pharmacy increased one hour per week to 99 hours. Pharmacist, technician, and support personnel hours worked per week also rose (up 1.4 percent, 5 percent, and 4.3 percent respectively).

Higher inventory and purchase figures were posted for 1983. The dollar values reported for inventory increased almost 9 percent, whereas purchases went up close to 19 percent. Another way of expressing inventory investment and purchase expenditures is in terms of patient days. Inventory per patient day was $1.99 during 1983, up 16.4 percent from the previous year. Purchases per patient day were $14.56, growing 27.5 percent from the year earlier. The estimated annual turnover rate showed substantial improvement, increasing from 6.7 to 7.3 times. The floor area of the central pharmacy increased 23 square feet during 1983.

When the operating figures for pharmacies submitting data for two consecutive years are compared with the overall sample, it appears that there is an appreciable similarity in several categories of figures. Hospital pharmacy directors have indicated that the review process associated with the Lilly Analysis Service report provides another means of increasing familiarity with the elements of hospital pharmacy department operations.

Table 15 *Summary of operating figures in hospital pharmacies reporting two consecutive years*

	1983 (1621 Hospitals)	1982 (1496 Hospitals)	Percent of Change
Bed capacity	251	258	(−2.7%)
Class	Private (nonprofit)	Private (nonprofit)	
Profile	General	General	
Census	69%	72%	
Admissions	9040	9178	(−1.5%)
Length of patient stay	7.0 days	7.4 days	
Hours central pharmacy open/week	99	98	+1.0%
Pharmacist hours/week	294	290	+1.4%
Technician hours/week	271	258	+5.0%
Support personnel hours/week	120	115	+4.3%
Inventory	$125,991	$115,850	+8.8%
	$1.99/annual patient day	$1.71/annual patient day	+16.4%
Purchases	$920,457	$774,621	+18.8%
	$14.56/annual patient day	$11.42/annual patient day	+27.5%
Estimated inventory turnover rate	7.3 times	6.7 times	
Floor area (central pharmacy)	1704 sq ft	1681 sq ft	

The LILLY HOSPITAL PHARMACY SURVEY has reported hospital pharmacy operational statistics for the better part of a decade. As a result, some awareness of the evolution and challenges of hospital pharmacy practice can be observed. A few of the challenges center around such typical business objectives as cost containment, personnel efficiency, productivity planning, and government relations; and on the professional side, the growth of clinical pharmacy practice and the objective of improving the quality of health care while being cost-efficient.

Most pharmacy managers agree that even more involvement in accumulating the necessary information and seeking additional resources to assist their evaluation of the pharmacy's strengths and weaknesses will be required.

This evolutionary process appears to be quite dynamic and suggests that hospital pharmacy managers continue to keep a watchful eye on the developing trends in hospital practice. It is hoped that this SURVEY may serve as a resource and contribute in some way to help lighten the burden of meeting the challenges.

Analyzing Your Own Pharmacy Operation

The LILLY HOSPITAL PHARMACY SURVEY has been designed with two objectives: to provide an overview of hospital pharmacy operations and to supply pharmacy directors with data that can be compared with the figures of their individual operations. Such an exercise can result in an accurate evaluation of a pharmacy's strengths and weaknesses, the first step in decision making.

It is suggested that the operating figures for the pharmacy to be analyzed be entered on the work sheet on the following page. The areas to be examined include inventory, purchases, and pharmacist and technician work loads and payroll.

Which survey figures should be used for comparison depends on a number of considerations. The major variables are listed on the work sheet and include hospital profile, bed capacity, unit-dose and IV admixture systems, satellite and outpatient pharmacies, and geographic location.

In most instances, when a pharmacy's figures are below the survey averages, a favorable situation is indicated. However, this may not necessarily be so.

It should be kept in mind that the survey figures are essentially guidelines—not hard-and-fast rules. The pharmacy director's knowledge and judgment are needed to interpret the data properly. However, if this exercise does not result in a reasonable explanation of an unfavorable comparison, then it must be assumed that some corrective action is indicated.

Procedure for Comparative Evaluation

1. Gather information on pharmacy to be evaluated.
2. Select comparative data from appropriate tables.
3. Note differences from the averages.
4. If differences cannot be justified, consider implementing corrective action.
5. Repeat procedure next year by using new survey figures to evaluate impact of corrective action.
6. Contact LILLY HOSPITAL PHARMACY SURVEY staff for assistance, if necessary.

Comparative Analysis Work Sheet

If you wish to perform your own analysis, this work sheet may be useful.

If your pharmacy's operating data are affected by any of the variables that appear beneath each entry, adjust the comparative figure by consulting the appropriate table or chart listed. Enter whichever figure is the highest to obtain the most valid comparison.

1. Hospital profile
   - General ☐
   - Specialized ☐
   - Other ☐
2. Bed capacity _____
3. Geographic location _____
4. Unit-dose system — Yes ☐ No ☐
5. IV admixture service — Yes ☐ No ☐
6. Satellite pharmacies — Yes ☐ No ☐
7. Outpatient pharmacy — Yes ☐ No ☐

Operating Data	Current Data	Previous Year's Data	Survey Data (Comparable Category)
Inventory* (at cost) for 1983 Use Table 6 for averages and Table 14 to adjust for geographic variation. Refer to Table 7 if inventory includes IV or irrigation solutions or blood fractions. Refer to Table 8 if hospital has medical school faculty on staff. Refer to Table 10 for pharmacies with outpatient services. Refer to Table 11 for pharmacies with satellites.	$_____	$_____	$_____
Purchases* (at cost) for 1983 Use Table 6 for averages and Table 14 to adjust for geographic variation. Refer to Table 7 if purchases include IV or irrigation solutions or blood fractions. Refer to Table 8 if hospital has medical school faculty on staff. Refer to Table 10 for pharmacies with outpatient services. Refer to Table 11 for pharmacies with satellites.	$_____	$_____	$_____
Estimated inventory turnover ratio† Use Table 6 for averages.	_____ times	_____ times	_____ times
Pharmacist hours worked per week Use Chart 4 for averages. Refer to Table 10 for pharmacies with outpatient services. Refer to Table 11 for pharmacies with satellites.	_____ hours	_____ hours	_____ hours
Technician hours worked per week Use Chart 5 for averages. Refer to Table 10 for pharmacies with outpatient services. Refer to Table 11 for pharmacies with satellites.	_____ hours	_____ hours	_____ hours
Hours main pharmacy open per week Use Chart 3 for averages.	_____ hours	_____ hours	_____ hours
Pharmacist payroll Use Table 12 for annual pharmacist payroll.	$_____	$_____	$_____
Pharmacy floor size Use Table 2 for averages.	_____ sq ft	_____ sq ft	_____ sq ft

*Include prescription drugs, IV and irrigation solutions, and blood fractions, if normally in pharmacy's budget.

†Estimated inventory turnover ratio = $\frac{\text{Yearly purchases at cost}}{\text{Average inventory at cost}}$

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